What is claimed is:

1. A refrigerant pump comprising:

a sealed casing;

an electric motor having a stator disposed outside the sealed casing and a rotor disposed within the sealed casing;

a pump mechanism juxtaposed with the electric motor; and

a drive shaft for transmitting a rotational force of the rotor to the pump mechanism,

wherein the stator is positioned closer to the pump mechanism than the rotor is.

2. The refrigerant pump according to claim 1, wherein the drive shaft has a large-diameter portion having first and second end surfaces opposite to each other, the first end surface positioned remote from the electric motor having a higher precision than the second end surface.

3. The refrigerant pump according to claim 2, wherein a surface of the drive shaft is carburized or nitrided.

4. A refrigerant pump comprising:

a sealed casing;

an electric motor having a stator disposed outside the sealed casing and a rotor disposed within the sealed casing;

a pump mechanism juxtaposed with the electric motor;

a drive shaft for transmitting a rotational force of the rotor to the pump mechanism; and

a bearing for rotatably supporting the drive shaft,

wherein at least one of the drive shaft ant the bearing has a carburized or nitrided surface.

5. A refrigerant-circulating cooling device comprising a refrigerant pump according to any one of claims 1 to 4, wherein the refrigerant pump is free from oil.